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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/820,024	04/08/2004	Masaaki Oyamada	0092/012001	7572

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EXAMINER	
TSOY, ELENA	
ART UNIT	**PAPER NUMBER**
1762	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/26/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/820,024	OYAMADA ET AL.	
	Examiner	Art Unit	
	Elena Tsoy	1762	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *26 March 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *3,5,7 and 9-39* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *3,5,7 and 9-39* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *08 April 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *4/08/04; 3/26/07*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on March 26, 2007 has been entered.

Response to Amendment

Amendment filed on March 26, 2007 has been entered. Claim 6 has been cancelled. New claims 35-39 have been added. Claims 3, 5, 7, and 9-39 are pending in the application.

Double Patenting

Provisional rejection of Claims 3-10 on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 3-15 of copending Application No. 10/820,025 in view of Henry et al (US Patent No. 6,156,390).

Rejection of claim 3 on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 5 of U.S. Patent No. 6,770,369 in view of Weber et al has been withdrawn due to filing a terminal disclaimer.

Claim Objections

Objection to claims 16, 33, and 34 because of the informalities has been withdrawn due to amendment.

"electroless plating powder" in Claim 3 should be changed to "electroless plat**ed** powder".

Claim 3, step III, line 2-4; Claim 12, lines 8-9; Claim 14, lines 4-6; Claim 15, lines 4-5; Claim 16, step III, lines 3-4; Claim 27, lines 4-5; Claim 28, lines 4-5; Claim 29, lines 4-5; Claim 30, lines 3-4; Claim 33, step III, lines 3-4; Claim 34, step III, lines 3-4; Claim 39, two bottom lines, "a second solution, which contains a reducing agent-containing solution" should be changed to "a second solution, which contains a reducing agent".

Claim 3, step II, lines 4-5; Claim 16, step II, lines 4-5; Claim 33, step II, lines 4-5 and step III, line 7; Claim 34, step II, lines 4-5 and step III, line 7, "initial thin nickel films" should be changed to "initial thin nickel film~~s~~".

Claim 34, a second "(II)" should be changed to "(III)".

The Examiner Note:

1. All previous rejections of claims 3, 5, 7, and 9-34 based upon a primary reference of Weber have been withdrawn because the Declaration under 37 CFR 1.132 filed on March 26, 2007 showed that nickel film of Weber does not include claimed columnar structures.

2. A phrase "initial thin nickel film" was interpreted by the Examiner according to the specification as originally filed as a film having thickness within a range of 0.001-2 microns (See published Application, P31).

Declaration under 37 CFR 1.132

3. The Declaration under 37 CFR 1.132 filed March 26, 2007 is sufficient to overcome the rejection of claims 3, 5, 7, and 9-34 based upon primary reference of

Weber as set forth in the last Office action. However, the above Declaration is insufficient to overcome new ground(s) of rejection based on translation of JP 1-242782 submitted by Applicants with IDS on March 26, 2007.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 3, 5, and 7-39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kawakami et al (JP 1-242782).

Kawakami et al disclose a method for making conductive (See Translation, page 22, paragraph 1) electroless plated powder comprising the steps of: (I) allowing the core particles which have a noble metal ion-capturing ability to capture noble metal ions (See Translation, page 14) such as Pd using dilute acid solution of palladium salt (See Translation, page 14, paragraph 2), and reducing the noble metal ions by a reducing agent used in the electroless plating solution ***optionally*** in the presence of a complexing agent used in the electroless plating solution (See Translation, page 15, paragraph 1) so that the surfaces of the core particles support the noble metal (See Translation, page 15, lines 2-7); (II) dispersing the core particles in a dispersion medium such as an aqueous solution containing at least one component constituting electroless plating solution, in particular, an aqueous solution of complexing agent (See Translation, page 17,

paragraph 2), e.g. wastewater of plating containing a complexing agent (See Translation, page 17, five bottom lines); (III) adding ***at least two* solutions constituting electroless plating solution**, e.g. a nickel ion-containing solution, a complexing agent solution such as tartaric acid, glycine or ethylenediamine solution (See Translation, page 18, lines 6-7; page 25, Table 5), and a solution of reducing agent such as sodium borohydride or dimethylamine borane (See Translation, page 19, paragraph 3), **individually and simultaneously** to the aqueous suspension containing the dispersion (II) of core particles to perform electroless plating (See Translation, page 19). In Examples 1-10, Kawakami et al teach that two solutions constituting electroless plating solution that are added individually and simultaneously to a suspension of core particles are made of a nickel salt solution as one solution, and a reducing agent solution combined with sodium hydroxide as second solution, whereas a complexing agent is added to the suspension of core particles (See Translation, page 23, paragraphs 3-4). Kawakami et al further teach that by adding the plating solution, the plating reaction starts *promptly* (See Translation, page 21, paragraph 2, lines 1-2). Although Kawakami et al do not expressly teach that ***two*** solutions constituting electroless plating solution to be added individually and simultaneously to the suspension of core particles may be made by combining a complexing agent solution with a nickel salt solution, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have made two solutions constituting electroless plating solution by combining a nickel ion-containing solution with a complexing agent solution (one solution) and a reducing agent solution combined with sodium hydroxide (second solution) with the expectation of providing the desired prompt start of the plating reaction upon individual and simultaneous addition of two solutions to

the suspension of core particles because Kawakami et al teach that at least two solutions constituting electroless plating solution may be made from a nickel ion-containing solution, a complexing agent solution, and a solution of reducing agent; and the nickel salt is added *separately* from the reducing agent. Kawakami et al further teach that the rate of addition of the agent solution directly affects the plating reaction and is significantly related to the surface area and physical properties of the core material. Thus, it is necessary to add the agent solution by controlling so that irregularities do not occur in the plating film and uniform and strong film can be formed. See Translation, page 20. If the individual agents are added at the proper ratio, all of the metal salt added is reduced and deposited on the surface of the core material. Consequently, the thickness of the plating film can be controlled arbitrarily depending on the amount of addition. See Translation, page 21, paragraph 2.

Kawakami et al fail to teach that a second plated layer is applied over said first plated layer in the presence of wastewater of a first plating solution.

(i) It is a well-known principle to reapply a coating composition to achieve a desired thickness of a final coating depending on intended use of the final coated product.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have reapplied a plated nickel layer in Kawakami et al, according to well-known principle, with the expectation of providing the desired thickness of a final coating. Thus, if the initial plated nickel layer is too *thin*, i.e. is not of desired thickness, the plating process can be repeated in the presence of **wastewater of the first plating** solution.

(ii) Kawakami et al teach that core material include inorganic core materials such as metals, glass, ceramic, metal oxides, organic core materials (See Translation, page 12, paragraph 2), that can be used alone or *in combination of two* or more (See Translation, page 12, paragraph 2, last two lines). It would have been obvious to one of ordinary skill in the art at the time the invention was made to have use nickel coated non-metal core materials as metal core particles in Kawakami et al since Kawakami et al teach that combination of two core materials can be used as core materials and Kawakami et al do not limit core materials to particular metals. It would have also been obvious to one of ordinary skill in the art at the time the invention was made to have coated non-metal core materials with nickel using electroless plating since Kawakami et al teach that non-metal core materials can be coated with nickel by electroless plating.

It is the Examiner's position that the plated film include columnar structures extending in a direction of thickness of a nickel film since it is formed by a process substantially identical to that of claimed invention.

It is also the Examiner's position that forming a first nickel layer in Kawakami et al by adding electroless plating agent solutions separately and simultaneously to a suspension of core particles reads on claimed step II of dispersing core particles in an initial solution because claims do not recite that the core particles are added to the solutions.

As to concentration limitations, Kawakami et al teach that the concentration of each agent can be set within saturation concentration and is not particularly limited (See Translation, page 20). Moreover, it is well settled that differences in concentration or temperature will not support the patentability of subject matter encompassed by the prior

art unless there is evidence indicating such concentration or temperature is critical. "Where the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation." In re Aller, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have determined the optimum values of the relevant concentration parameters (including those of claimed invention) in Kawakami et al through routine experimentation in the absence of showing of criticality.

As to claim 10, the core particles are imparted with the noble metal ion-capturing ability by a surface treatment (See Translation, page 14).

As to claims 33-34, different kinds of metals such as **nickel and gold** (See Translation, page 19, paragraph 2) may be deposited in several layers on the metal-coated powder (See Translation, page 21, paragraphs 2-4), e.g. gold layer on top of nickel layer (See Translation, page 31).

6. Claims 3, 5, and 7-39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kawakami et al in view of Weber et al (US 6,274,241).

Kawakami et al are applied here for the same reasons as above. Kawakami et al teach that core material include inorganic core materials such as metals, glass, ceramic, metal oxides, organic core materials (See Translation, page 12, paragraph 2), that can be used alone or *in combination of two* or more (See Translation, page 12, paragraph 2, last two lines). Kawakami et al fail to teach that a combination of glass and metal core materials can be prepared by electroless plating of glass powder by forming first a nucleation layer of Pd metal on the surface of the glass powder, and then exposing a

nuleated glass powder to electroless plating solution containing a nickel salt, a reducing agent, and complexing agent so that a second plated layer is applied over said first plated layer in the presence of wastewater of a first plating solution.

Weber et al teach that *nickel* film (See column 5, lines 45-47) can be applied to glass powder (See column 3, lines 48-58) by forming first a nucleation layer of Pd metal on the surface of the glass powder (See Example 1), and then exposing a nuleated glass powder to electroless plating solution containing a nickel salt, a reducing agent, and complexing agent (See Example 2).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have used nickel coated non-metal core materials as metal core particles in Kawakami et al since Kawakami et al teach that combination of two core materials can be used as core materials, and Kawakami et al do not limit core materials to particular metals. It would have also been obvious to one of ordinary skill in the art at the time the invention was made to have coated nucleated non-metal core materials such as glass particles with nickel film in Kawakami et al using electroless plating since Weber et al teach that *nickel* film can be applied to glass powder by forming first a nucleation layer of Pd metal on the surface of the glass powder, and then exposing a nuleated glass powder to electroless plating solution containing a nickel salt, a reducing agent, and complexing agent.

7. Claims 3, 5, and 7-39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kawakami et al/Kawakami et al in view of Weber et al/, further in view of Segawa et al (JP 2001-316834).

Kawakami et al/Kawakami et al in view of Weber et al/ are applied here for the same reasons as above. Kawakami et al do not expressly teach that at least ***two*** solutions constituting electroless plating solution to be added individually and simultaneously to the suspension of core particles are made by combining a complexing agent solution with a nickel salt solution.

Segawa et al teach that if a reducing agent is mixed in advance with a chelating solution of cobalt, a reduction reaction will proceed due to the reducing agent, the life of the plating solution will become shorter, and a change will arise in the film-forming rate along with time between the start and end of the life of the plating solution (See P53). Further nickel and cobalt easily precipitate as hydroxides in an alkaline solution (See P61). Therefore, in order to prevent reduction of life of a plating solution and obtain homogeneous good plating deposits (See P31), it is desirable to hold each component of a plating solution separately in two or more tanks and mix them with a plating cup 21 (See P51), for example, a metal solution containing chelating agent separately from a reducing agent containing pH regulator (See P15, 23, 51-53).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have used a combination of a metal salt solution with a chelating agent as one solution and a solution of a reducing agent and pH-regulator as second solution in the cited prior art with the expectation of preventing reduction of life of a plating solution and obtaining the desired homogeneous good plating deposits, as taught by Segawa et al.

Response to Arguments

8. Applicant's arguments with respect to claims 3, 5, 7, and 9-39 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Elena Tsoy whose telephone number is 571-272-1429. The examiner can normally be reached on Monday-Thursday, 9:00AM - 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Meeks can be reached on 571-272-1423. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

ELENA TSOY
PRIMARY EXAMINER

Elena Tsoy
Primary Examiner
Art Unit 1762

April 24, 2007